

[54] CONTACT LENS

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[63] Continuation-in-part of Ser. No. 151,377, June 9, 1971, abandoned, and a continuation-in-part of Ser. No. 172,538, Aug. 17, 1971, abandoned, and a continuation-in-part of Ser. No. 299,711, Oct. 24, 1972, abandoned.

[52] U.S. Cl. **427/36; 156/272; 204/159.13; 204/159.15; 260/827; 264/1; 264/22; 351/160; 427/44; 427/164; 428/447; 428/451; 428/500**[51] Int. Cl.² **G02C 7/04; C08F 2/54**[58] Field of Search .. **351/160; 117/93.31, 138.8 A; 260/827; 204/159.13, 159.15; 264/1, 22; 156/272**[56] **References Cited****UNITED STATES PATENTS**

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OTHER PUBLICATIONSYasuda et al., "Graft Copolymerization of Vinylpyrrolidone Onto Polydimethylsiloxane," *Journal of Polymer Science*, Part A, Vol. 2, pp. 5093-5098, (1964).*Primary Examiner*—William D. Martin*Assistant Examiner*—William H. Schmidt*Attorney, Agent, or Firm*—Kenway & Jenney[57] **ABSTRACT**

A contact lens comprising a silicon polymer or copolymer core and a hydrophilic polymer surface grafted to the core is formed by contacting a silicone with a free radical polymerizable precursor to the polymer in a liquid state and subjecting the precursor and silicone to a high dose of ionizing radiation for a short period. The radiation dose, time of radiation and temperature are controlled to produce an optically clear contact lens by forming a smooth surface of the polymer grafted to the silicone, preventing substantial migration of the precursor into the silicone and preventing localized high concentration of hydrophilic polymer on the silicone surface. The silicone may be irradiated while immersed in a solution of the precursor or in a mold where the precursor is present as a coating on an inside surface of the mold. The hydrophilic surface may be grafted onto a silicone sheet which is then grafted onto the silicon lens.

14 Claims, 12 Drawing Figures